

**WHAT IS CLAIMED IS:**

1. A light source device, comprising:

a light-emitting tube including a light-emitting portion that generates a light beam by an electric discharge between electrodes, and sealing portions provided on both sides of the light-emitting portion; and

a reflector including a neck portion provided with an insertion hole to which the light-emitting tube is inserted, and a reflecting portion integrally formed with the neck portion and having an ellipsoidal curved reflecting surface that irradiates the light beam emitted by the light-emitting portion after aligning in a predetermined direction,

wherein the light-emitting tube has a sub-reflection mirror that covers substantially front half of the light-emitting portion,

wherein the insertion hole has a diameter that is enlarged from the base end thereof toward the distal end in a light irradiation direction, and

wherein the opening diameter of the insertion hole on the side of the reflecting surface is greater than the external diameter of the sub-reflection mirror while the opening diameter is within the diameter of a valid reflection area of the reflector, the diameter being defined by a front focal position of the reflector and the outer periphery of the sub-reflection mirror.

2. A projector comprising:

a light source device;

an optical modulator that modulates a light beam irradiated by the light source device in accordance with image information to form an optical image; and

a projection optical device that projects the optical image formed by the optical modulator in an enlarged manner,

wherein the light source device comprises:

a light-emitting tube including a light-emitting portion that generates a light beam by an electric discharge between electrodes, and sealing portions provided on both sides of the light-emitting portion; and

a reflector including a neck portion provided with an insertion hole to which the

light-emitting tube is inserted, and a reflecting portion integrally formed with the neck portion and having an ellipsoidal curved reflecting surface that irradiates the light beam emitted by the light-emitting portion after aligning in a predetermined direction,

5 wherein the light-emitting tube has a sub-reflection mirror that covers substantially front half of the light-emitting portion,

wherein the insertion hole has a diameter that is enlarged from the base end thereof toward the distal end in a light irradiation direction, and

10 wherein the opening diameter of the insertion hole on the side of the reflecting surface is greater than the external diameter of the sub-reflection mirror while the opening diameter is within the diameter of a valid reflection area of the reflector, the diameter being defined by a front focal position of the reflector and the outer periphery of the sub-reflection mirror.